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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,824	07/19/2007	Gregory Faris	SRI-110/PCT/US	8993
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LUMEN PATENT FIRM				
350 Cambridge Avenue				
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PALO ALTO, CA 94306				
EXAMINER				
BRUTUS, JOEL F				
ART UNIT		PAPER NUMBER		
3777				
NOTIFICATION DATE		DELIVERY MODE		
11/25/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@lumen.com

**Office Action Summary****Application No.**

10/586,824

**Applicant(s)**

FARIS, GREGORY

**Examiner**

JOEL F. BRUTUS

**Art Unit**

3777

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 14 and 16-22 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) \_\_\_\_ is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/10/11
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14, 17 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kline (Pub. No.: US 2004/0210154) in view of Fishman (US Pat: 5,271,401) and further in view of Griffith et al (US Pat: 6,197,575).

Regarding claims 14 and 21-22, Kline discloses means for administering carbon dioxide and oxygen into the lung [see figs 1-4, 0042-0047] and lasers operating in the near infrared [see 0055] to illuminate the lung. Kline discloses laser diode spectrometry can be used for detection of more than one gas and can be used for determining the presence of various pathophysiological processes that are specific to certain disease states and diagnosing the presence of lung cancer [see 0026, 0057 and abstract].

Kline discloses in an attempt to increase the accuracy of diagnostic, physicians have recently turned to methods which can produce an image of a potentially afflicted lung which involves the injection of a small amount of radioactive particles into a vein. The radioactive particles then travel to the lungs where they highlight the perfusion of blood in the lung based upon whether they can penetrate a given area of the lung. While normal results can indicate that a patient lacks a pulmonary embolism [see 0010]. Kline discloses data processing means determines the oxygen and carbon dioxide

concentrations and a display screen to diagnose embolism [see 0026, see fig 11 and 0063-0064].

Kline doesn't explicitly mention varying the levels of carbon dioxide and oxygen.

Nonetheless, Fishman discloses administer a mixture of gases such as oxygen and carbon dioxide [see column 7 lines 20-43]; using an imaging system to image the patient during and before administering the gas mixture [see column 7 lines 45-65, column 8 lines 1-15]. Fishman also discloses varying the percentage of each gas in the mixture [see column 8 lines 32-36].

In addition, Griffith et al disclose an oxygenator 187 which supplies oxygen and removes carbon dioxide. The flow rate of inlet gas can be controlled through the use of a control valve 192 connected to a computer control system 183 [see column 30 lines 53-68, column 31 lines 1-3 and fig 7 and 11].

Therefore, one with ordinary skill in the art at the time the invention was made would have been motivated to combine with Griffith et al by using the control valve along with the oxygenator to vary the levels of carbon dioxide and oxygen and with Fishman by using the imaging system to acquire images of the region of interest before and during administration of the gas and use the data analyzer of Kline which includes computer processor to analyze the image for identifying diseases such as vascular cancer; in order to provide an accurate and reliable diagnosis.

Regarding claim 17, all other limitations are taught as set forth by the above teaching.

Kline discloses using multiple light emitting diodes [see 0057, 0061]. Kline discloses in the near infrared range, detection wavelengths will be 1390 nm for carbon dioxide and 760 nm for oxygen [see 0056]. Wavelengths of 780, 840 and 970 are possible wavelengths that can be used; however, any other wavelengths can be used as long as there are within the near infrared range.

3. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kline (Pub. No.: US 2004/0210154) in view of Fishman (US Pat: 5,271,401) and further in view of Griffith et al (US Pat: 6,197,575) as applied to claim 14 above and further in view of Parker et al (US Pat: 5,548,120).

Regarding claim 16, all other limitations are taught as set forth by the above teaching.

Kline doesn't teach a charge coupled camera sensitive in near infrared.

Nonetheless, Parker et al disclose CCD image camera that is sensitive in infrared illumination [see fig 1, column 3 lines 1-5, lines 66-68 and column 4 lines 1-5].

Therefore, one skilled in the art at the time the invention was made would have been motivated to combine Kline with Parker et al by using a camera sensitive in near infrared; because using near infrared because it's highly sensitive for tumor/cancer detection and tracking.

4. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being over Kline (Pub. No.: US 2004/0210154) in view of Fishman (US Pat: 5,271,401) and further in view of Griffith

et al (US Pat: 6,197,575) as applied to claim 14 above and further in view of Dolecek et al (Pub. No.: US 2004/0058794).

Regarding claims 18-20, all other limitations are taught as set forth by the above teaching.

Kline doesn't teach a holding means containing an immersion medium or tissue phantom liquid having optical properties of the region of interest and a doughnut-shaped transparent bag that can be pressed against the region of interest.

Nonetheless, Griffith et al disclose sample 188 and culture medium 189 are mixed in a feed reservoir 185 (relied on as the immersion box) in proportions so as to provide an appropriate sample concentration. Culture medium containing a test substance is circulated by a pump 186 through a microscale tissue array 101 contained within a reactor housing 181 [see fig 7 and column 31 lines 19-25].

In addition, Dolecek et al disclose a flexible transparent doughnut-shaped bag that is configured to be filled with a medium [see 0061] and operable to be pressed against the region of interest.

Therefore, one skilled in the art at the time the invention was made would have been motivated to combine Kline with Griffith et al and Dolecek et al by using flexible transparent doughnut-shaped bag to contain the immersion medium and presses against the region of interest; because it can comply to the region of interest and allow the physician to see through.

***Response to Arguments***

5. Applicant's arguments filed 7/29/2011 have been fully considered but they are not persuasive.

Applicant argues that the analysis unit 82 which includes vacuum pump 108 doesn't teach varying the levels of CO<sub>2</sub> and O<sub>2</sub>.

Applicant's arguments in that regard are moot since the argued limitations are taught as explained above by Fishman which discloses administering a mixture of gases such as oxygen and carbon dioxide [see column 7 lines 20-43]; using an imaging system to image the patient during and before administering the gas mixture [see column 7 lines 45-65, column 8 lines 1-15]. Fishman also discloses varying the percentage of each gas in the mixture [see column 8 lines 32-36].

Applicant argues that Fisherman doesn't teach an imaging acquisition means for acquiring images of a region of interest before and during administration of the varying levels of vasoactive agents that includes CO<sub>2</sub> and O<sub>2</sub> being administered in opposition or alternation.

The examiner disagrees because Fisherman is not relied on for these teachings. Kline is relied on for the teaching of imaging acquisition means (as explained above) for acquiring images of a region of interest before and during administration carbon dioxide and oxygen into the lung [see figs 1-4, 0042-0047]. Therefore, Applicant's arguments are moot.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOEL F. BRUTUS whose telephone number is (571)270-3847. The examiner can normally be reached on Mon-Thu 8:30 AM to 7:00 PM (Off Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tse Chen can be reached on (571)272-3672. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. F. B./  
Examiner, Art Unit 3777

/Tse Chen/  
Supervisory Patent Examiner, Art Unit 3777